Plant Pathology Circular No. 88
December 1969

Fla. Dept. of Agr. and Cons. Serv.
Division of Plant Industry

STEM AND GRAFT CANKER OF ROSE

S. A. Alfieri, Jr.

The rose is one of the world's most popular plants and has been grown for centuries. It is well adapted for growth in Florida and grows practically the year round (4). Roses are utilized in many ways as ornamental plants. They are used as hedges, ground covers, edging driveways and walks, to beautify porches, as well as for cut flowers in the home (6).

Stem and graft canker of rose is caused by the fungus Coniothyrium fuckelii Sacc. (= Leptosphaeria coniothyrium Sacc., its perfect stage). The disease was first reported as occurring on Rosa in 1884 by Saccardo and later, in 1911, shown to be related to the stem canker of apple by O'Gara (5). It is considered to be widespread throughout the United States and most prevalent on hybrid tea roses (7). C. fuckelii is considered to be essentially a wound pathogen which gains entrance into its host via wounds produced in any of a number of ways, such as through thorn pricks, leaf and thorn scars, mechanical breaks induced by winds, insects, pruning of canes, and injuries at the graft union of scion and stock (3,5,7,8). Infection of stems can take place through dormant buds, though this appears rare (7). Other plants included in the host range of this fungus are the spindletree, Euonymus spp.; greenbrier, Smilax spp.; strawberry, Fragaria spp.; apple, Malus sylvestris; blackberry and raspberry, Rubus spp.; gooseberry, Ribes spp.; Virginia creeper, Parthenocissus quinquefolia (9). C. fuckelii is also known to occur as a soil-inhabiting fungus (2).

SYMPTOMS. The disease is seldom observed in its early stage which occurs as either a red or yellow spot on the surface of the cane. The spots become brown or black as they increase in size (Fig. 1). The surface of the spot becomes slightly wrinkled

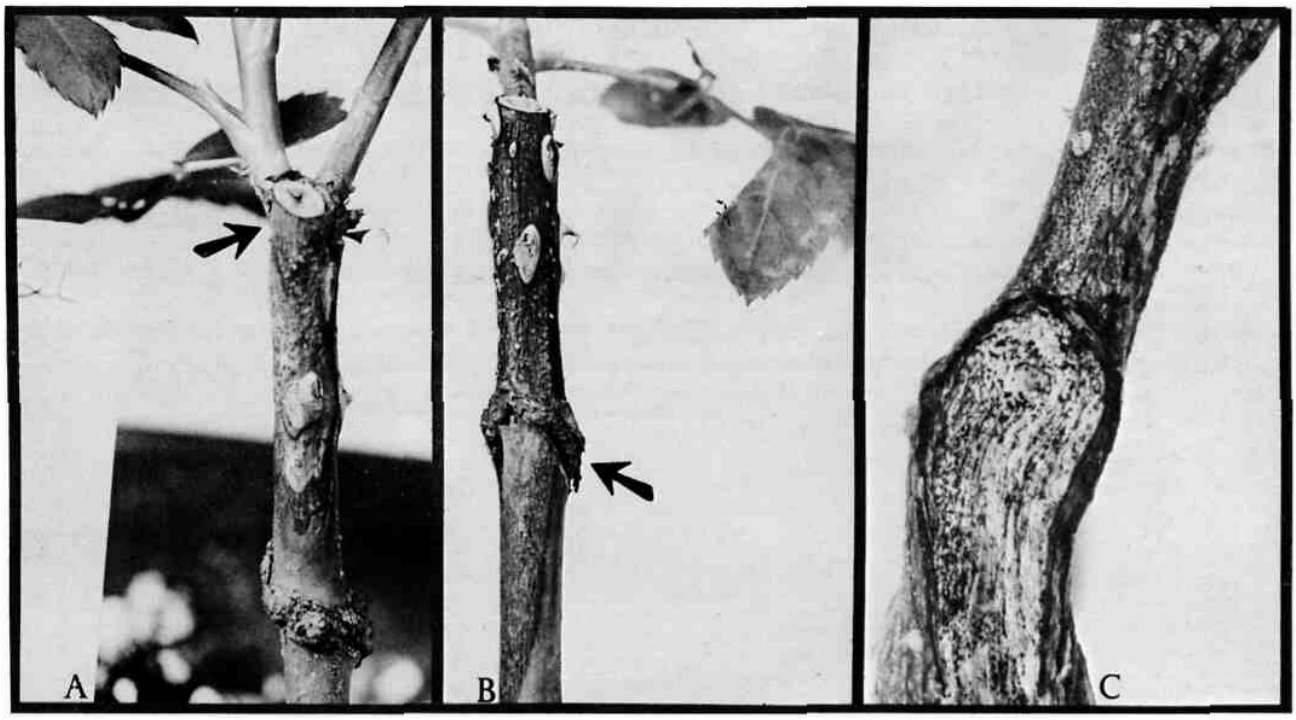

Fig. 1. Stem and graft canker of rose: A) canker occurring at the end of a cut cane; B) canker occurring at the graft union; C) enlargement of a canker with fungus pycnidia.

and pimply or wartlike over the submerged fruiting structures (pycnidia) of the fungus. The spore masses occur as brown or olive-brown sooty masses of extrusions overlying the pycnidia (7,8) and are not readily seen even with the aid of a hand lens. The spores are splashed about by rains or irrigation water (3). Pruning tools also aid in disseminating fungus spores to healthy canes. Ultimately, the infected stems become girdled and die. If infection takes place at the graft union, the entire plant usually succumbs. Generally, the graft canker is produced on young grafts under greenhouse conditions and the stem canker on older plants in either the greenhouse or the garden (7).

CONTROL. Since stem and graft canker are essentially established as a result of varied types of wounds, such injuries should be held to a minimum. The practice of disinfesting pruning tools used in rose propagation with 10%, Clorox, alcohol or formalin at 1 oz of commercial formalin to 2 gal of water is to be encouraged (1). Infected canes should be pruned out by cutting well back from the affected areas and destroyed. The cut should be made close to a node where callus formation takes place most readily (8). Spraying as for black spot control with any one of the following fungicides is recommended: maneb 80% WP at 2 lb/100 gal (2 level teaspoons/gal); Dithane M-45 80% WP at 1 lb/100 gal (1 level tablespoon/gal); Phaltan 75% WP at 1 lb/ 100 gal (1 level tablespoon/gal) (4); Daconil 75% WP at 3/4 lb/100 gal (2 level teaspoons/gal) (3). Lastly, the use of disease-free scions and rootstocks cannot be overemphasized (1).

Literature Cited

1. Forsberg, *J.* S. 1963. Diseases of ornamental plants. Univ. Illinois Special Publ. No. 3. 208 p.
2. Hodges, C. S. 1962. Fungi isolated from southern forest tree nursery soils. Mycologia 54:221-229.
3. Mastalerz, *J.* W. and R. W. Langhans. 1969. Roses. Roses Inc. Haslett, Mich. 331 p.
4. McFadden, S. E., H. N. Miller, L. C. Kuitert, and A. M. Wilson. 1964. Roses in Florida. Univ. Fla. Agr. Ext. Serv. Bull. 180. 55 p.
5. O'Gara, P. *J.* 1911. Parasitism of Coniothyrium fuckelii. Phytopathology 1:100-102.
6. Rosen, H. R. 1963. Keeping roses in good health. Univ. Ark. Agr. Ext. Serv. Circ. 412 (rev.) 46 p.
7. Waterman, Alma M. 1930. Diseases of rose caused by species of Coniothyrium in the United States. *J.* Agr. Res. 40(9):805-827.
8. Westcott, Cynthia. 1950. Plant disease handbook. Van Nostrand Co. New York. 746 p.
9. U.S. Dept. Agr. Handbook No. 165. 1960. Index of plant diseases in the United States. U.S. Government Printing Office. Washington, D.C. 531 p.